

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ORDER 92-085
(RESCINDING ORDER 90-073)

SITE CLEANUP REQUIREMENTS FOR:

NORTH AMERICAN TRANSFORMER
MILPITAS FACILITY
MILPITAS, SANTA CLARA COUNTY

The California Regional Water Quality Control Board, San Francisco Bay Region, (hereinafter the Board) finds that:

1. SITE LOCATION AND DESCRIPTION North American Transformer (NAT) has owned and operated the site at 1200 Piper Drive in Milpitas since its 1966 to 1967 development from agricultural use to a manufacturing facility for electrical transformers (see site location map Figure 1).
2. REGULATORY STATUS North American Transformer (hereinafter referred to as a discharger) is a discharger because of their ownership and occupancy of the Site, during which time one or more chemical spills occurred and because of their use of chemicals associated with soil and groundwater pollution. Currently there is a groundwater pollution plume emanating from the Jones Chemicals Incorporated (Jones) site upgradient, which extends under the NAT site to the Ford Motor Company (Ford) site downgradient and laterally onto the Prudential property and the Milpitas Business Park. The distribution of VOCs from this groundwater pollution plume has been altered significantly by the operation of the Jones groundwater extraction system which began in 1987. At the time Board Order 90-073 was issued, there was not sufficient evidence to conclude whether or not NAT had contributed to releases to groundwater. Extensive investigations have been conducted since that time. The results of those additional investigations indicate that NAT may have contributed some portion or all of only two of the pollutants found in groundwater beneath the site - Trichloroethane (TCA) and Total Petroleum Hydrocarbons (TPH) as Transformer Oil with minor kerosene (< 15 percent) - due to a release from an underground pipeline in what is known as the Transformer Oil Pipeline (TOP) Area (location shown on Figure 2). NAT is named as a discharger of TPH and TCA which resulted from the known release in the TOP area. Other releases on the NAT property are not believed at this time to have contributed to the groundwater pollution at the site. Other VOCs detected in groundwater beneath the NAT site, and in soils at many locations, appear at this time to be the result of the Jones plume. Should further investigation

determine that these VOCs resulted from discharges from NAT this Order may be revised to reflect this finding.

3. SITE HISTORY The site was used primarily for agricultural purposes prior to the initiation of industrial activities in 1961. The South Yard (Figure 2) portion of the site was used for storage of wrapped pipes by Ameron Incorporated between 1961 and 1970. The major portion of the site has been used by NAT for transformer manufacturing since construction of the main building in 1967. Various types of transformers have been produced at the site, most of which were oil-filled, but some of which produced up to 1973 did contain Polychlorinated Biphenyls (PCBs). Chemical handling included the use of paints and coatings, transformer oil, glues and resins, metal working fluids, iron phosphates, and solvents and thinners. The chlorinated solvents utilized by NAT, pursuant to the Site and Chemical Use History report, submitted to the Board were TCA and a solvent blend which contained 25 percent each of Methylene Chloride and Tetrachloroethene (PCE).
4. ADJACENT FACILITIES Four facilities are located adjacent to the discharger; Jones is immediately adjacent upgradient, Milpitas Business Park is located to the south, Ford is downgradient from the NAT facility and property owned by Prudential Insurance Corporation (PIC) is located north of NAT. A groundwater pollution plume, originating from the Jones site, has migrated offsite and has been detected beneath the NAT site, the Milpitas Business Park, the PIC property and at the upgradient margin of the Ford site. The potential for contribution from NAT to groundwater is for the specific chemicals named above and only for the area of the Transformer Oil Pipeline release and downgradient. It appears NAT has contributed to the groundwater plume from its release in the TOP area and downgradient. Based on available data, other areas investigated on the NAT property are not believed to be probable areas of groundwater contamination.
5. SITE GEOLOGY AND HYDROGEOLOGY The site is located within the Coast Range geomorphic province at the northern extent of the Santa Clara Valley and the southern portion of San Francisco Bay. The ground surface is relatively flat, with a gentle slope toward the west. The facility is underlain by inter-bedded alluvial sediments composed of sand, gravel, silt and clay. Groundwater elevation measurements show a westward flow direction in the shallow groundwater.
6. SOIL AND GROUNDWATER INVESTIGATION Facility investigations have been conducted at six general areas on the NAT Site - Paint Drying Area, Drum Storage Area, Manufacturing Building, South Yard, Bay 1, and Transformer Oil Pipeline (TOP) Area (Figure 2). The investigations focused on areas of known chemical handling or of possible releases. The investigations by NAT consultants included soils sampling in 101 soil borings and the installation and sampling of 23 monitoring wells. Much of the investigative work has been conducted since the issuing of the Board Order 90-073. Soil chemical data for four of the areas

investigated - Paint Drying, Drum Storage, and the Manufacturing Building, and the South Yard - did not indicate the presence of chlorinated volatile organic compounds in soils at concentrations which might indicate a release. Concentrations of total chlorinated solvents in the Paint Drying, Drum Storage, and the Manufacturing Building areas were generally less than .12 ppm. Concentrations of total VOCs in the South Yard were generally up to about 3 ppm.

VOCs were detected in soils at varying concentrations at almost every location sampled in the six areas. In all areas except two, the predominate constituents are PCE and trichloroethene (TCE). The consistency of the relative proportions of the constituents (i.e., PCE to TCE) in soils suggest a similar source and appears to be the result of volatilization from the underlying plume.

An apparent solvent release in the West Bay 1 area inside the manufacturing building ran over the floor, under the wall and into the soils at the margin of the foundation. The detailed soil chemical data collected in the West Bay 1 area does not indicate that the release of solvent impacted groundwater. Depth to groundwater historically in this area has been 10 to 12 feet. The downward migration of the VOCs was apparently contained within the clays which underlie this area to a depth of 5 feet. Clayey soils containing elevated concentrations of VOCs (Maximum concentrations: TCA - 660 mg/kg, TCE - 55 mg/kg, PCE - 66 mg/kg) were excavated from the clays both outside and adjacent to the building and from beneath the adjacent interior concrete slab. Impacted soils below a footing which supports the building at this location are currently being remediated by soil vapor extraction. Investigations in the West Bay 1 area included the installation and sampling of six shallow groundwater monitoring wells and a historical evaluation of VOC concentrations in upgradient and downgradient wells.

On 30 July 1991, transformer oil was observed at the ground surface at a joint between a concrete sidewalk and the asphalt parking surface at the TOP area on the south side of the NAT manufacturing building (Figure 3). Soils were excavated in the vicinity of the surface release. Six pipelines convey fluids from the transformer testing area inside the manufacturing building to the above ground tank farm at the south side of the building. A corrosion leak was found in one of the six pipelines. Ten hand auger locations, nineteen soil borings, and 14 monitoring wells have been installed and sampled in the TOP area (Figure 2). The results of soils analyses indicate that there is an area directly beneath the pipeline leak and along the coarse backfill of the pipeline trench which has been impacted by petroleum hydrocarbons. Several VOCs were also found in soils impacted by the transformer oil, predominantly TCA (maximum concentration 28 mg/kg) and lesser concentrations of TCE (maximum 1.7 mg/kg) and PCE (maximum 3.7 mg/kg). PCB 1260 was detected in three soils samples at concentrations below 50 mg/kg (ppm).

The transformer oil release has resulted in a plume of floating product on the groundwater table in the TOP area. The apparent areal extent of the floating product is illustrated on Figure 3. Total petroleum hydrocarbons as transformer oil were detected in a groundwater sample collected from well MW-5 at a concentration of 150 ug/l and were at non-detectable concentrations in selected other downgradient wells sampled. PCBs were detected in the floating product at concentrations of up to 130 mg/l in a transformer oil sample collected from well MW-11. There was no evidence of PCBs in groundwater samples collected from downgradient wells (MW-5, MW-6, MW-4, and MW-3). VOCs were also detected in analysis of floating product samples collected from MW-12 and MW-11. There was a known release of transformer oil containing elevated concentrations of TCA in the TOP area, however, it is difficult to evaluate the impact to groundwater of the TCA released with the transformer oil given the fact that the oil is in contact with the underlying Jones plume which also contains TCA.

Given the fact that a known release of transformer oil containing elevated concentrations of TCA is present in free product floating on groundwater in the TOP area and the fact that dissolved transformer oil is detected in groundwater samples collected from one downgradient well (MW-5), NAT is considered a discharger of TPH and TCA to groundwater.

7. INTERIM REMEDIAL ACTIONS The discharger has performed remedial actions at the West Bay 1 and TOP areas. In the West Bay 1 area shallow soils containing elevated concentrations of VOCs were excavated to a depth of approximately 6 feet from the area outside the building and beneath the concrete slab of the building. Impacted soils below a footing which supports the building in the West Bay 1 area are currently being remediated by soil vapor extraction. In the TOP area, soils were excavated in the vicinity of the surface release, to determine the source of the release, and to perform initial sampling of soils in the vicinity of the release. The floating transformer oil plume is being remediated by the use of an oil skimming system. A pilot test was conducted on well MW-11 and showed the effectiveness of the technique. The system is currently being expanded to include skimming from 8 total wells.
8. SCOPE OF THIS ORDER This order contains tasks for evaluating the effectiveness of the floating product remediation system in the TOP area and proposals and implementation of final remedial actions. These tasks are necessary to alleviate the threat to the environment posed by further migration of the existing soil pollution and to provide a substantive technical basis for designing and evaluating the effectiveness of final cleanup actions. This Order supersedes and rescinds Order 90-073.
9. The Regional Board adopted a revised Water Quality Control Plan for the San Francisco Bay Region (Basin Plan) on December 17, 1986. The Basin Plan contains

water quality objectives and beneficial uses for south San Francisco Bay, and contiguous surface and groundwaters.

10. The existing and potential beneficial uses of the groundwater underlying the facility include:
 - a. municipal water supply
 - b. domestic water supply
 - c. agricultural water supply
 - d. industrial service and process water supply
11. The discharger has caused or permitted, and threatens to cause or permit waste to be discharged or deposited where it is or probably will be discharged to waters of the State and creates or threatens to create a condition of pollution or nuisance.
12. The Board has notified the discharger and interested agencies and persons of its intent to prescribe site cleanup requirements and has provided them with an opportunity for a public hearing and an opportunity to submit their written views and recommendations.
13. The action is an order to enforce the laws and regulations administered by the Board. This action is categorically exempt from the provisions of the CEQA pursuant to Section 15321 of the Resources Agency Guidelines.
14. The Board, in a public meeting, heard and considered all comments pertaining to these requirements.

IT IS HEREBY ORDERED, pursuant to Section 13304 of the California Water Code, that the discharger shall cleanup and abate the effects described in the above findings as follows:

A. PROHIBITION

1. The discharge of waste or hazardous materials in a manner which will degrade the water quality or adversely affect beneficial uses of the waters of the State is prohibited.
2. Further migration of pollutants through surface runoff or subsurface transport to groundwaters or surface waters of the State is prohibited.
3. Methods employed to investigate, contain, and/or clean up polluted soil and groundwater which will cause further significant migration of pollution are prohibited.

B. SPECIFICATIONS

1. The handling, storage, treatment or disposal of waste and polluted soil and groundwater shall not create a nuisance as defined in Section 13050(m) of the California Water Code.
2. The discharger shall conduct monitoring activities as needed to confirm the current local hydrogeologic conditions, and the lateral and vertical extent of soil and groundwater pollution in and contiguous to the zone of known pollution. Should monitoring results show evidence of plume migration, additional plume characterization shall be required.
3. The cleanup goal for soil pollution is 1 ppm for total VOCs. Alternate cleanup goals may be proposed based on site specific data. If higher goals are proposed, the discharger must demonstrate that cleanup to 1 ppm total VOCs is infeasible, that the alternate levels will not threaten quality of the waters of the state, and that human health and the environment are protected. Additionally, if chemicals are left in the soil at any level, a program of continued groundwater monitoring will be required. Final cleanup goals for soil shall be approved by the Executive Officer.
4. Final cleanup levels and goals for polluted groundwater, onsite and offsite, shall be background water quality if feasible, but shall not be greater than the DHS drinking water Action Level (AL) or Maximum Contaminant Level (MCL), whichever is more stringent. If an AL or MCL has not been established, the level shall be in accordance with the State Water Resources Control Board's Resolution No. 68-16, "Statement of Policy with Respect to Maintaining High Quality of Waters in California", based on an evaluation of the cost, effectiveness and a risk assessment to determine affect on human health and the environment. Final cleanup levels for groundwater shall be approved by the Board. These levels shall have a goal of reducing the mobility, toxicity, and volume of pollutants.
5. If groundwater extraction and treatment is considered as an alternative, the feasibility of water reuse, reinjection, and disposal to the sanitary sewer must be evaluated. Based on the Regional Board Resolution 88- 160, the discharger shall optimize, with a goal of 100%, the reclamation or reuse of groundwater extracted as a result of cleanup activities. The discharger shall not be found in violation of this Order if documented factors beyond the discharger's control prevent the discharger from attaining this goal, provided the

discharger has made a good faith effort to attain this goal. If reuse or reinjection is part of a proposed alternative, an application for Waste Discharge Requirements may be required. If discharge to waters of the State is part of a proposed alternative, an application for an NPDES permit must be completed and submitted, and must include the evaluation of the feasibility of water reuse, reinjection, and disposal to the sanitary sewer.

C. PROVISIONS

1. IT IS HEREBY ORDERED, pursuant to Section 13304 of the California Water Code, that the dischargers, their agents, successors and assigns shall cleanup and abate the effects described in the above findings in accordance with the following task and time schedule:

TASKS AND COMPLETION DATES

- a. TASK: PROPOSE FINAL CLEANUP OBJECTIVES AND ACTIONS
DUE DATE: September 15, 1992

Description: Submit a technical report acceptable to the Executive Officer that proposes final cleanup objectives and actions for soil and groundwater pollution. This report shall contain: 1) a summary of all investigation results for the TOP and West Bay 1 areas in terms of geology, hydrogeologic conditions, and extent of soil and groundwater pollution; 2) evaluation of the effectiveness of the installed interim remedial measures; 3) feasibility study evaluating final remedial measures; 4) the recommended measures necessary to achieve final cleanup objectives; and 5) the tasks and time schedule necessary to implement the recommended final remedial measures.

- b. TASK: COMPLETE IMPLEMENTATION OF FINAL CLEANUP ACTIONS
DUE DATE: 60 days after implementation in accordance with the schedule of Task 1.a.

Description: Submit a technical report acceptable to the Executive Officer documenting the implementation of final cleanup actions.

c. TASK: FIVE-YEAR STATUS REPORT
DUE DATE: June 17, 1997

Description: Submit a technical report acceptable to the Executive Officer containing: 1) results of any investigative work completed; 2) an evaluation of the effectiveness of installed final cleanup measures; 3) additional recommended measures to achieve final cleanup objectives and goals, if necessary; 4) a comparison of previous expected costs with the costs incurred and projected costs necessary to achieve cleanup objectives and goals; 5) tasks and time schedule necessary to implement any additional final cleanup measures, 6) an evaluation of the feasibility of achieving final cleanup objectives drinking water levels for polluted groundwater at the NAT facility, and 7) recommended measures for reducing Board oversight

3. All technical reports submitted must be acceptable to the Executive Officer. Technical reports evaluating interim and final remedial measures shall include a projection of the cost, effectiveness, benefits, and impact on public health and the environment. Remedial investigation and feasibility studies shall consider the guidance provided by Subpart F of the National Oil and Hazardous Substances Pollution Contingency Plan (40 CFR Part 300); Section 25356.1(c) of the California health and Safety Code; CERCLA guidance documents with reference to Remedial Investigation, Feasibility Studies, and Removal Actions; and the State Water Resources Control Board's Resolution No. 68-16, "Statement of Policy with Respect to Maintaining High Quality of Waters in California".
4. If the discharger is delayed, interrupted or prevented from meeting one or more of the completion dates specified in the Order, the discharger shall notify the Executive Officer prior to the completion date.
5. The dischargers shall regularly submit to the Board acceptable status reports on compliance with the requirements of this Order and quarterly groundwater monitoring. Groundwater elevation measurements and water quality sampling shall be coordinated with sampling conducted by Ford and Jones. The initial round of sampling should occur on or about July 1, 1992. The first report shall be for the second calendar quarter of 1992, due on September 30, 1992, and submitted quarterly thereafter. Each quarterly report shall contain at least the following:
 - a. summary of work completed since the previous status report,
 - b. summary tabulation of all well construction data, and

- quarterly groundwater level measurements,
- c. a cumulative tabulation for all floating product extraction wells of chemical analysis results and pounds of chemicals removed,
- d. identification of any obstacles which may threaten compliance with this Order and what actions are being, or will be, taken to overcome these obstacles, and
- e. discussion of events of noncompliance with this Order, including proposed tasks and time schedule to achieve compliance, identified incomplete work that was projected to be complete, and impact of noncompliance on complying with the remainder of this Order.

The discharger shall submit on an annual basis summary status reports on the progress of compliance with all requirements of this Order and propose modifications which could increase the effectiveness of final cleanup actions. The first report would be due on January 31, 1993, and would cover the previous calendar year. The reports shall include, at least, progress on site investigation and remediation, operation and effectiveness of remediation actions and systems, and an evaluation of the feasibility of meeting groundwater and soil cleanup goals.

- 6. All samples shall be analyzed by State certified laboratories using approved EPA methods for the type of analysis to be performed. All laboratories shall maintain quality assurance/quality control records for Board review.
- 7. All plans, specifications, reports, and documents shall be signed by or stamped with the seal of a registered geologist or professional engineer, or certified engineering geologist.
- 8. The discharger shall maintain in good working order and operate, as efficiently as possible, any facility or control system installed to achieve compliance with the requirements of this Order.
- 9. Copies of all correspondence, reports, and documents pertaining to compliance with this Order, shall be provided to the following agencies:
 - a. Santa Clara Valley Water District
 - b. Santa Clara County Health Department
 - c. City of Milpitas
 - d. Department of Toxic Substances Control/DTSC
- 10. The discharger shall permit the Board or its authorized representative, in accordance with Section 13267(c) of the California Water Code:

- a. Entry upon premises where any pollution source exists, or may potentially exist, or in which any required records are kept;
 - b. Access at reasonable times to copy any records required to be kept under terms and conditions of this Order;
 - c. Inspection of any monitoring equipment or methods required by this Order.
 - d. Sampling of any groundwater or soil which is accessible, or may become accessible as part of any investigation or remedial action program, to the discharger.
11. The discharger shall file a report on any material changes in the nature, quantity, or transport of polluted groundwater associated with the pollution described in the Order.
12. The Board will review this Order periodically and may revise the requirements when necessary.
13. Pursuant to Section 13304 of the Water Code, the Discharger is hereby notified that the Regional Board is entitled to, and may seek reimbursement for, all reasonable costs actually incurred by the Regional Board to investigate unauthorized discharges of waste and to oversee cleanup of such waste, abatement of the effects thereof, or other remedial action, required by this Order. Upon receipt of a billing statement for such costs, the discharger shall reimburse the Regional Board.

I, Steven R. Ritchie, Executive Officer, do hereby certify the foregoing is a full, true and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region on July 15, 1992.



Steven R. Ritchie
Executive Officer

Attachments:

- Figure One, Site Map
- Figure Two, Investigation Area Map
- Figure Three, TOP Area Map



SOURCE: U.S.G.S. 7.5 MINUTE TOPOGRAPHIC QUADRANGLE MAPS,
MILPITAS CALIFORNIA AND CALAVERAS RESERVOIR,
CALIFORNIA, 1961 (PHOTOREVISED 1980).

0 2000
SCALE IN FEET

NORTH AMERICAN
TRANSFORMER
MILPITAS, CALIFORNIA



LAW ENVIRONMENTAL
INC.

SITE LOCATION PLAN

JOB NO. 55-8689

FIGURE 1



LEGEND

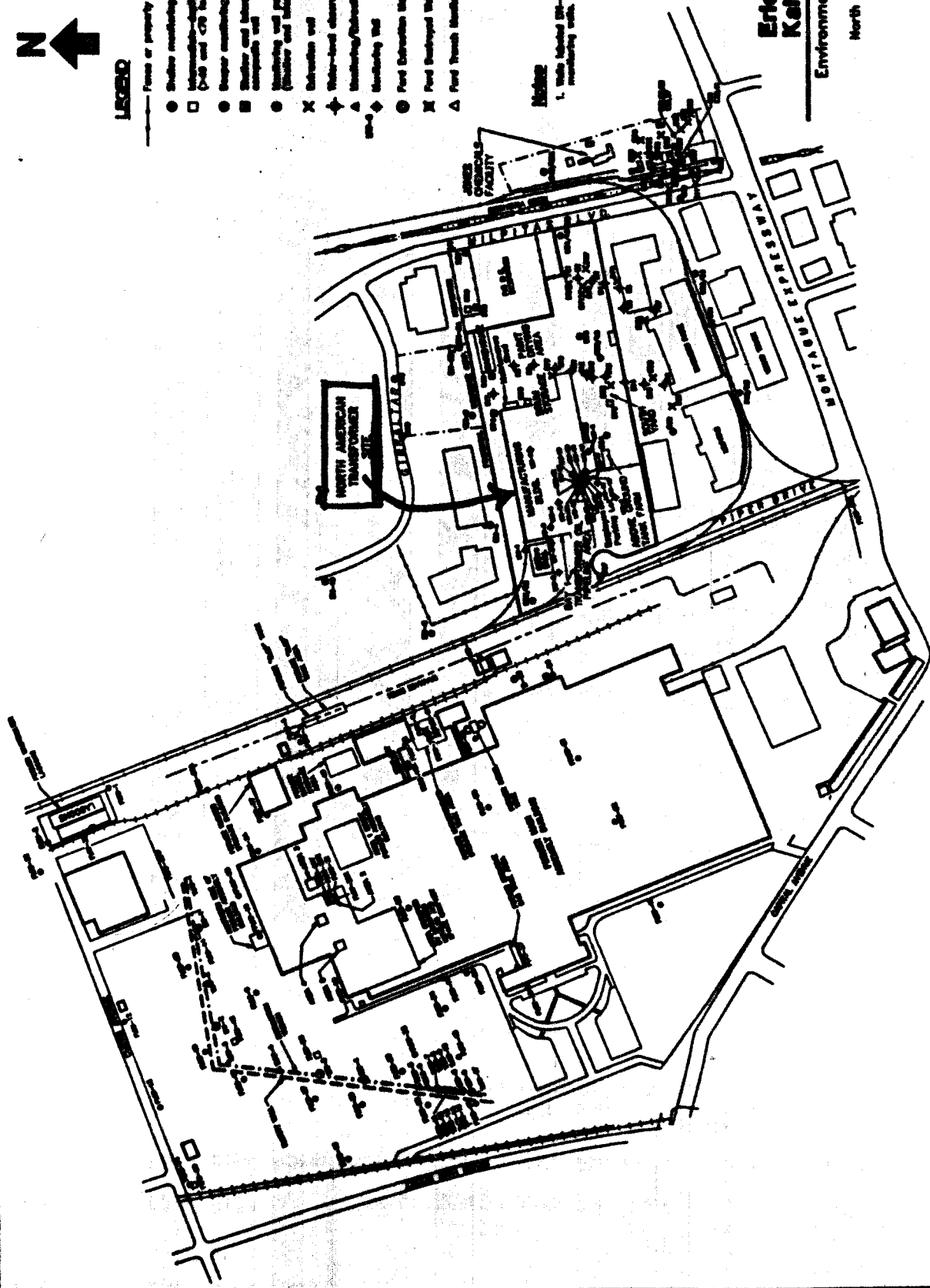
----- Fence or property line

- Shallow monitoring well (400 feet deep)
- Intermediate-depth monitoring well (200 and 400 feet deep)
- Deeper monitoring well (500 feet deep)
- Shallow and intermediate-depth composite well
- Monitoring well with
- Shallow and intermediate-depth
- X Observation well
- ◆ Water-level observation well
- ▲ Monitoring/observation well cluster
- ◆ Monitoring well
- Field Detection Monitoring Well
- Field Background Well
- ▲ Field Trend Monitoring Well

NOTE

- 1. Wells labeled SW-9 are Production monitoring wells.

0 200 FEET



Ertel & Kalinowski, Inc.

Environmental Investigations

Locations

North American Transformer

Millerton, CA

April 1992

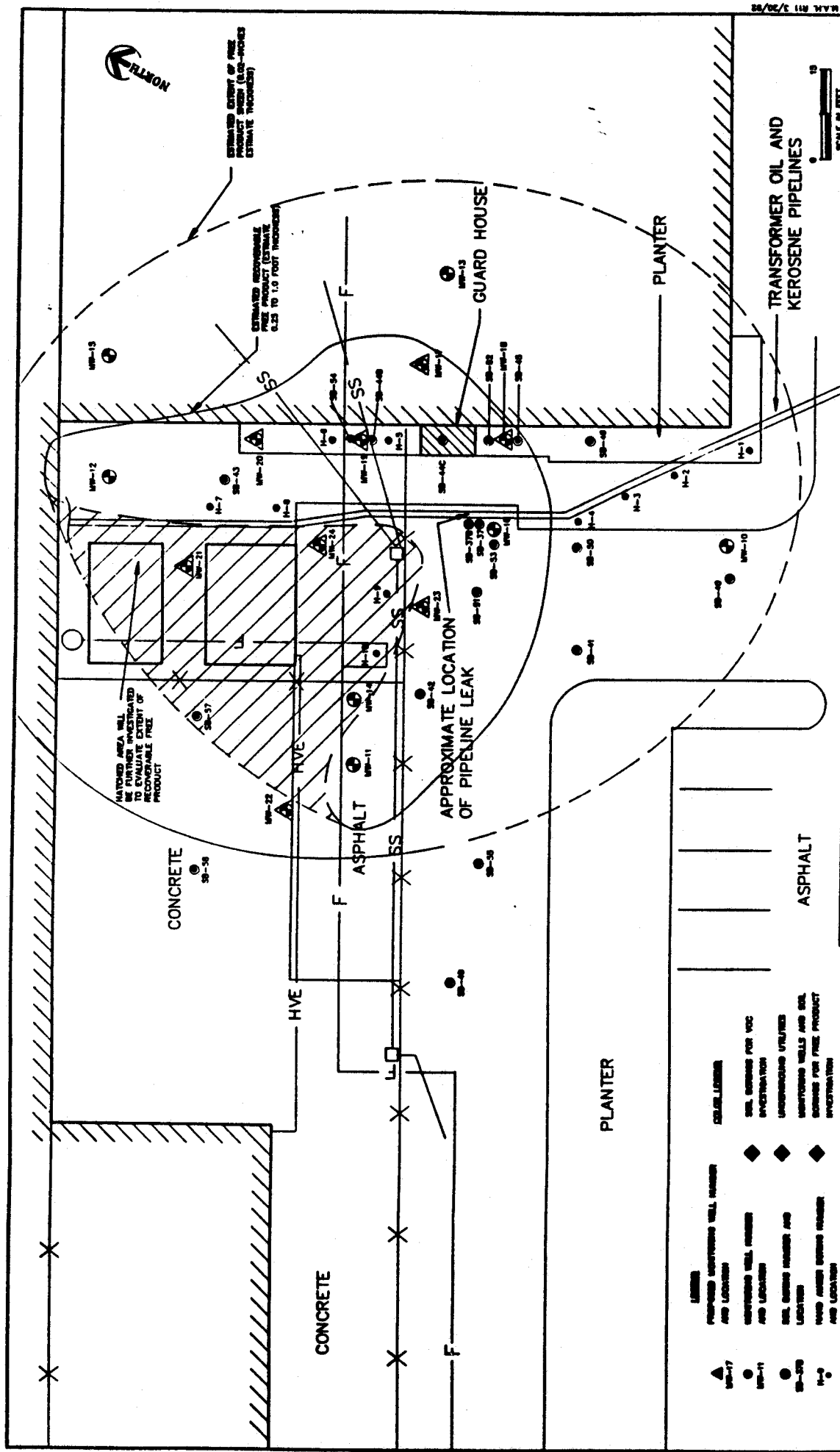
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Figure 3

SOIL BORING AND
MONITORING WELL LOCATIONS
TOP AREA



NORTH AMERICAN TRANSFORMER
MILPITAS, CALIFORNIA



- LEGEND**
- ▲ PRE-PROD MONITORING WELL NUMBER AND LOCATION
 - MONITORING WELL NUMBER AND LOCATION
 - SOIL BORING NUMBER AND LOCATION
 - MONITORING WELL NUMBER AND LOCATION
 - F — FREE PRODUCTION WATER LINE
 - SB — STORM SEWER
 - X — FENCE
 - HVE — HIGH VOLTAGE ELECTRICAL LINE
- COLLECTED DATA**
- ◆ SOIL BORING FOR VOC INFILTRATION
 - ◆ UNDERGROUND UTILITIES
 - ◆ MONITORING WELLS AND SOIL BORING FOR FREE PRODUCT INFILTRATION
 - ◆ SOIL BORING FOR OIL CONTAMINATED SOIL INFILTRATION